

Remarks

The Office action mailed November 24, 2004, has been reviewed and carefully considered. After entry of this amendment, claims 1-46 and 70-93 should be pending. Claims 47-69 have been cancelled. Claims 3, 10-26, 35-45, 73-77 and 79 have been withdrawn. New claims 81-93 have been added.

I. Restriction and Election of Species Requirements

The Examiner's final restriction requirement is acknowledged. Accordingly, Group II claims 47-69 have been cancelled without prejudice or disclaimer. Applicants reserve all rights to pursue these and similar claims in separate related applications.

Claims 3, 10-26, 35-45, 73-77 and 79 are directed to non-elected species of Group I and remain withdrawn pending the identification of allowable generic claims. Applicants maintain that claim 1 is generic as to species I-a and species I-b. Therefore, if generic claim 1 is found to be allowable, then Applicants are entitled to examination of the claims directed to non-elected species I-b in addition to examination of the claims directed to elected species I-a. M.P.E.P. § 809.04.

II. Claim Rejections - 35 U.S.C. § 112

Claims 27-34, 46 and 80 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants respectfully traverse this rejection.

A claim must be considered as a whole to determine whether it satisfies the requirements of 35 U.S.C. § 112, second paragraph. M.P.E.P. § 2173.02. In context, claim 27 recites "at least one oxidant gas delivery system that can produce oxidant-enriched gas for delivery to the fuel cell" Based on this context, it is clear that the oxidant-enriched gas is the product of an oxygen enrichment process occurring in the oxidant gas delivery system. The term "oxidant-enriched" indicates that the oxygen concentration of the product gas is greater than the oxygen concentration of the feed gas. Therefore, contrary to the Examiner's assertion, there is a standard for comparison. The standard for comparison is the feed gas entering the oxidant gas delivery

system. The oxidant-enriched gas has an oxygen concentration greater than the oxygen concentration of the feed gas.

The definiteness of claim language also must be considered in view of the content of the specification. M.P.E.P. § 2173.02. In this case, the specification contains numerous examples of the formation and use of oxidant-enriched gases. In many of these examples, the oxidant-enriched gas is formed by adsorbing non-oxygen components of an air feed, thereby increasing the concentration of oxygen in the product gas (i.e., enriching the product gas in oxygen). For example, one portion of the specification describes an oxygen gas delivery system that “incorporates an oxygen pressure swing adsorption system, preferably including a rotary pressure swing adsorption module for enriching oxygen gas from air.” Page 10, lines 14-16. This further supports use of the feed gas as a standard for comparison.

III. Claim Rejections - 35 U.S.C. § 102

Claims 1, 2, 4-9, 70, 72 and 78 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,686,196 (Singh et al.). Applicants respectfully traverse this rejection.

Claim 1 recites “at least one expander that can receive fuel from [a] fuel storage container at a first pressure and provide the fuel to [a] power plant at a second pressure that is lower than the first pressure.” The relationship between the expander and the fuel storage container is important because it allows for the recovery of a portion of the fuel storage energy.

Singh et al. does not disclose or suggest an expander that can receive fuel from a fuel storage container. Instead, Singh et al. discloses an expander and a hydrogen storage system that receive separate output streams from a hydrogen separator. Singh et al. Figure 1. The input stream entering the hydrogen separator is a mixture of hydrogen and reformed diesel fuel. Singh et al. Figure 1. After separation in the hydrogen separator, the hydrogen portion is routed into the hydrogen storage system while the reformed diesel fuel is depressurized in the expander for delivery to a fuel cell generator. Singh et al. column 4, lines 53-56. Hydrogen from the hydrogen storage system is routed back to the beginning of the process to be mixed with incoming diesel fuel. Singh et al. column 4, lines 45-52.

Claims 7, 8 and 78 each recite a heat exchanger as part of the power plant system. The Examiner alleges that Singh et al. anticipates these claims because the ambient atmosphere serves as a heat exchanger. Applicants respectfully disagree. A person of ordinary skill in the art would recognize the term “heat exchanger” to identify a tangible device for transferring heat to serve some useful purpose. The Merriam-Webster Online Dictionary defines “heat exchanger” as “a *device* . . . for transferring heat from one fluid to another without allowing them to mix.” <http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=heat+exchanger>. The heat exchangers disclosed by Applicants are devices. The atmosphere is not a device. Heat loss to the atmosphere typically serves no useful purpose. If the ambient atmosphere were considered to be a heat exchanger then all objects in contact with the atmosphere could be said to comprise heat exchangers. Such an interpretation is not reasonable.

IV. Claim Rejections - 35 U.S.C. § 103

Claims 27, 28, 30-34 and 71 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Singh et al. in view of U.S. Patent No. 5,147,735 (Ippommatsu et al.). Applicants respectfully traverse this rejection.

Similar to claim 1, claim 27 recites “at least one expander that can receive hydrogen from [a] hydrogen storage system at a first pressure and provide the hydrogen to [a] fuel cell at a second pressure that is lower than the first pressure.” As discussed above, Singh et al. does not disclose or suggest an expander that can receive hydrogen from a hydrogen storage system.

Claim 27 also recites “at least one oxidant gas delivery system that can produce oxidant-enriched gas for delivery to the fuel cell and that includes at least one device that is coupled to the expander.” Singh et al. may disclose an expander and Ippommatsu et al. may disclose a pressure swing adsorber, but these references, alone or in combination, fail to disclose or suggest any relationship between these two elements. The relationship between the oxidant gas delivery system and the expander disclosed by Applicants and recited in claim 27 provides a particularly useful configuration for utilizing a portion of the recovered fuel storage energy. Singh et al. and Ippommatsu et al., alone or in combination, fail to disclose or suggest the recovery of fuel

storage energy, let alone the recovery of fuel storage energy with an oxygen gas delivery system that includes a device coupled to an expander.

V. Dependent Claims

All rejected dependent claims depend from a rejected independent claim and are allowable for the reasons stated for each independent claim. Each of the dependent claims is further allowable in view of the patentable combination of features recited in such dependent claim.

VI. New Claims


Applicants have added new claims 81-85. Support for new claim 81 can be found, for example, in the specification at page 4, lines 10-14 and in originally filed claim 23. Support for new claim 82 can be found, for example, in the specification at page 7, lines 17-18. Support for new claim 83 can be found, for example, in the specification at page 7, lines 18-20. Support for new claim 84 can be found, for example, in the specification at page 7, lines 27-28. Support for new claims 85, 86 and 90 can be found, for example, in the specification at page 7, line 29 to page 8, line 3. Support for new claim 87 can be found, for example, in the specification at page 8, lines 4-15. Support for new claims 88-89 can be found, for example, in the specification at page 8, lines 4-5. Support for new claim 90 can be found, for example, in the specification at page 21, lines 1-3 and in originally filed claim 59. Support for new claim 91 can be found, for example, in the specification at page 9, lines 1-7. Support for new claim 93 can be found, for example, in the specification at page 9, lines 7-10.

VII. Conclusion

It is respectfully submitted that the present claims are in condition for allowance. Should there be any questions regarding this application, Examiner Chaney is invited to contact the undersigned attorney at the telephone number shown below.

Respectfully submitted,

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